Amendment to the Claims:

1. (Cancelled)

2. (Previously Presented) A diagnostic image processing system comprising:

a user interface with which a user selects a region of interest of at least one baseline diagnostic image of a current patient having a current patient identity from which parameter values are to be extracted;

a subject database that stores diagnostic images generated at different times each in association with at least a patient identity and a date, the subject database being updated each time a patient is imaged;

a database searching means that searches the subject database with the current patient identity for the stored diagnostic images containing the selected region of interest of the current patient;

a parameter extraction processor that extracts the parameter values from the selected region of interest of the at least one baseline image of the current patient and extracts like parameter values from the selected region of interest of the stored diagnostic images of the current patient or from data for generating the stored diagnostic images of the current patient; and,

a report formatting means for formatting the extracted parameter values from the at least one baseline image and the stored diagnostic images of the current patient generated at different times into a report descriptive of the parameter value's development with time.

3. (Cancelled)

4. (Previously Presented) The system as set forth in claim 2, further including:

an image registration processor that aligns and scales the selected region of interest of the stored diagnostic images and the at least one baseline diagnostic image of the current patient.

5. (Cancelled)

6. (Previously Presented) The system as set forth in claim 2, wherein the report formatting means includes a graphing means for plotting change of a selected parameter versus time.

7. (Previously Presented) The system as set forth in claim 4, further including:

a cinè image sequence generator that converts the selected region of interest of the baseline and stored diagnostic images into a temporally scaled sequence of cinè images.

8. (Cancelled)

9. (Previously Presented) A method of diagnostic image processing including:

generating diagnostic image representations of a current subject at different dates with a diagnostic imaging apparatus;

storing the generated diagnostic image representations in a subject database catalogued by at least subject identity and date;

generating and displaying on a monitor a baseline diagnostic image representation of the current patient;

selecting a region of interest of the subject on the displayed baseline diagnostic image representation;

searching the subject database with the current subject identity and retrieving the diagnostic image representations of the current subject which include the selected region of interest;

extracting user selected parameter values from the selected region of interest of the displayed baseline and retrieved diagnostic image representations of the current subject;

formatting the extracted parameter values from the retrieved and baseline diagnostic image representations into a report; and,

at least one of displaying the report on the monitor and storing the report in the subject database.

10. (Cancelled)

11. (Previously Presented) The method as set forth in claim 9, further including:

registering the selected region of interest of the diagnostic image representations retrieved from the subject database with the selected region of interest of the baseline image representations.

12. (Previously Presented) The method as set forth in claim 11, further including:

displaying the registered diagnostic image representations sequentially by date.

13. (Previously Presented) The method as set forth in claim 12, further including:

temporally interpolating the registered diagnostic image representations such that the sequentially displayed image representations are displayed with a linear time scale.

14. (Cancelled)

15. (Previously Presented) The method as set forth in claim 9, wherein the formatting step includes:

presenting the selected parameter values extracted from the baseline and retrieved diagnostic image representations in tabular format by date.

16. (Previously Presented) The method as set forth in claim 9, wherein the formatting step includes:

presenting the selected parameter values extracted from the baseline and retrieved diagnostic image representations in a graph versus time with a pre-selected time scale.

17. (Previously Presented) The method as set forth in claim 9, wherein the parameter values include at least one of:

a volume of the selected region;

a blood flow through the selected region;

an average density in the selected region;

diffusion coefficients of the selected region;

fractional diffusion anisotropy values in the selected region; and,

spectroscopic peak intensities in the selected region.

18. (Currently Amended) A method of diagnostic imaging comprising:

creating an image representation of a portion of a subject with a diagnostic imaging apparatus;

with a user interface, selecting a region of the image representation for further study;

with one or more processors:

storing the image representation in a subject database cataloged by at least a subject identity and a date the image representation was generated[[;]].

extracting selected parameter values from the image representation and storing them in the subject database[[;]].

creating at least one other image representation of the portion of the subject on a subsequent date[[;]].

extracting the selected parameter values from the at least one other image representation[[;]].

storing the at least one other image representation and the parameter values extracted from the at least one other image representation in the subject database[[;]], and

spatially registering the image representation and the at least one other image representation; and

on a monitor, displaying the image representations to show a time progression of the region.

19. (Original) The method as set forth in claim 18, further including:

presenting the selected parameter values in one of graphical and tabular form showing a progression of the parameter values over time.

20. (Original) The method as set forth in claim 18, wherein the image representation and the at least one other image representation are produced by different modalities of diagnostic imaging and registered by aligning structures identifiable in all modalities involved, and further including:

enhancing the resolution of the image representations by utilizing complementary characteristics of the modalities involved.

21. (Previously Presented) The method as set forth in claim 18, wherein the selected parameter values include a size of a tumor and the displaying step includes showing a time evolution of the size of the tumor.